

What is claimed is:

1. A wood cutting band saw blade that when cutting wood produces saw dust and forms a kerf, comprising:

a cutting edge defined by a plurality of teeth spaced relative to each other, and a back edge located on an opposite side of the band saw blade relative to the cutting edge, the plurality of teeth comprising a plurality of set teeth, each set tooth defining a tip, a bend plane, and a shelf located at least partially between the tip and the bend plane for reducing saw dust passing to the kerf and accumulating on the band saw blade.

2. The band saw blade of claim 1 wherein:

each of the set teeth comprise a relief surface and a cutting surface, the relief surface extending from one side of the tip in a direction opposite that of the movement of the band saw blade and terminating at one end of an intermediate surface and the cutting surface extending from another side of the tip; and

the shelf comprises a shelf surface extending from the cutting surface and terminating at another end of the intermediate surface.

3. The band saw blade of claim 2 wherein:

each of the set teeth has a dimension (S1) defined as the distance between the tip and the shelf of the respective tooth;

each of the set teeth has a dimension (B) defined as the distance between the tip and the bend plane of the respective tooth; and

a ratio of S1/B is within the range of approximately 0.25 to approximately 0.75.

4. The band saw blade of claim 3 wherein the ratio of S1/B is approximately .45.

5. The band saw blade of claim 2 wherein the shelf surface terminates in a shelf tip.

6. The band saw blade of claim 1 wherein the plurality of teeth further comprise a plurality of unset teeth and wherein:

the plurality of teeth have a repeating pattern of one unset tooth and four set teeth; and

the set teeth are alternately set in directions on opposing sides of the cutting edge.

7. The band saw blade of claim 3 wherein:

each of the teeth are set at an angle which is in the range of between approximately 1° and approximately 15° with respect to a transverse axis of the band saw blade; and

the dimension (S1) is within the range of approximately .06 inch to approximately .12 inch.

8. The band saw blade of claim 7 wherein the dimension (S1) is approximately .09 inch.

9. The band saw blade of claim 2 wherein a length (L1) of the shelf surface defined between the cutting surface and the intermediate surface is within the range of from between approximately .06 inch and approximately .1 inch.

10. The band saw blade of claim 1 wherein:

the shelf surface is generally planar and is disposed at an angle (A1) that is within the range of approximately 4° to approximately 10° relative to the back edge of the band saw blade.

11. The band saw blade of claim 10 wherein the angle (A1) is approximately 7°.

12. The band saw blade of claim 2 wherein the shelf surface comprises a first portion that is generally parallel to the back edge and a second portion that is disposed at an acute angle (A2) relative to the back edge.

13. The band saw blade of claim 12 wherein the angle (A2) is within the range of approximately 10° to approximately 20°.

14. The band saw blade of claim 12 wherein:

the second portion comprises one third of the length of the shelf surface; and

the angle (A2) is approximately 15°.

15. The band saw blade of claim 2 wherein the intermediate surface comprises a curvilinear base surface that defines a gullet.

16. The band saw blade of claim 15 further comprising at least one bump portion extending outwardly from a surface of each gullet.

17. The band saw blade of claim 16 wherein the at least one bump portion comprises a bump portion extending outwardly from a first side surface and a second side surface of each gullet.

18. The band saw blade of claim 16 wherein the at least one bump portion has a height (H) within the range of approximately .04 to approximately .06 inch from the curvilinear base surface.

19. The band saw blade of claim 18 wherein the bump portion has a lateral width (W) as measured from a side surface of a base of the band saw blade that is within the range of approximately .005 inch to approximately .015 inch.

20. The band saw blade of claim 15 wherein the gullet has a depth (D) as measured from the tip of a tooth and the dimension (S1) is approximately one third of (D).

21. The band saw blade of claim 1 wherein at least one tooth comprises a relief portion extending from the tip and having a relief angle (RA) within the range of approximately 0° to approximately 2°.

22. The band saw blade of claim 21 wherein the relief portion also comprises a tangential angle (TA) within the range of approximately 3° to approximately 6° to respect to the side of the blade body 210.

23. The band saw blade of claim 3 wherein:

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 a plurality of set teeth each comprise a second shelf;

 each second shelf comprises a second shelf surface, and each second shelf defines a dimension (S2) extending between the tip of a particular tooth and the second shelf.

24. The band saw blade of claim 23 wherein $S2=(B+S1)/2$ and $S1$ is within the range of between approximately .13 inch and .16 inch.

25. The band saw blade of claim 9 wherein:

each of the plurality of set teeth comprises a second shelf; and a length (L2) of each second shelf surface is within the range of approximately 70% to approximately 90% of (L1).

26. The band saw blade of claim 25 wherein the length (L2) of the each second shelf is approximately 80% of (L1).

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27. A wood cutting band saw blade having a lateral surface and generating dust during cutting of wood, the band saw blade comprising:

a base having a back edge;

a cutting edge defined by a plurality of teeth spaced relative to each other and being located on an opposite side of the band saw blade relative to the back edge, the plurality of teeth comprising a plurality of set teeth, each set tooth defining a tip, a bend plane, a dust gap extending approximately between an outer lateral point of the tip and a lateral surface of the base, and means located between the tip of a tooth and the bend plane for reducing the quantity of dust passing through the dust gap.

28. The band saw blade of claim 27 wherein the means for reducing the quantity of dust comprises at least one shelf.

29. The band saw blade of claim 28 wherein the means for reducing the quantity of dust further comprises a relief portion extending from the tip of a set tooth at an acute angle to a transverse axis of the saw blade.

30. The band saw blade of claim 28 wherein:

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each of the set teeth comprise a relief surface and a cutting surface, the relief surface extending from one side of the tip in a direction opposite that of the movement of the band saw

blade and terminating at one end of an intermediate surface and the cutting surface extending from another side of the tip; and

the shelf comprises a shelf surface extending from the cutting surface and terminating at another end of the intermediate surface.

31. The band saw blade of claim 30 wherein:

each of the set teeth has a dimension (S1) defined as the distance between the tip and the shelf of the respective tooth;

each of the set teeth has a dimension (B) defined as the distance between the tip and the bend plane of the respective tooth; and

a ratio of S1/B is within the range of approximately 0.25 to approximately 0.75.

32. The band saw blade of claim 31 wherein:

a plurality of set teeth each comprise a second shelf;

each second shelf comprises a second shelf surface, and each second shelf defines a dimension (S2) extending between the tip of a particular tooth and the second shelf.

33. The band saw blade of claim 32 wherein $S2=(B+S1)/2$ and S1 is within the range of between approximately .13 inch and .16 inch.

34. A wood cutting band saw blade having a lateral surface and generating dust during cutting of wood, the band saw blade comprising:

a base having a back edge;

a cutting edge defined by a plurality of teeth spaced relative to each other and being located on an opposite side of the band saw blade relative to the back edge, the plurality of teeth comprising a plurality of set teeth, each set tooth defining a tip, a bend plane, a dust gap dimension extending approximately between an outer lateral point of the tip and a lateral surface of the base; and

means for effectively reducing the dust gap dimension.

35. The band saw blade of claim 34 wherein the means for effectively reducing the dust gap dimension comprise at least one shelf.

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36. The band saw blade of claim 35 wherein the means for effectively reducing the dust gap dimension further comprises a relief portion extending from the tip of a set tooth at an acute angle to a transverse axis of the saw blade.

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37. The band saw blade of claim 35 wherein:

each of the set teeth comprise a relief surface and a cutting surface, the relief surface extending from one side of the tip in a direction opposite that of the movement of the band saw blade and terminating at one end of an intermediate surface and the cutting surface extending from another side of the tip; and

the shelf comprises a shelf surface extending from the cutting surface and terminating at another end of the intermediate surface.

38. The band saw blade of claim 37 wherein:

each of the set teeth has a dimension (S1) defined as the distance between the tip and the shelf of the respective tooth;

each of the set teeth has a dimension (B) defined as the distance between the tip and the bend plane of the respective tooth; and

a ratio of S1/B is within the range of approximately 0.25 to approximately 0.75.

39. The band saw blade of claim 38 wherein:

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a plurality of set teeth each comprise a second shelf;

each second shelf comprises a second shelf surface, and each second shelf defines a dimension (S2) extending between the tip of a particular tooth and the second shelf.

40. The band saw blade of claim 39 wherein $S2=(B+S1)/2$ and S1 is within the range of between approximately .13 inch and .16 inch.